

ECUACIONES

$$1. \frac{x+4}{3} - \frac{7-x}{x-3} = \frac{4x+7}{9} - 1$$

$$2. \frac{\frac{1}{3}}{x} = \frac{1-x}{x+\frac{1}{3}}$$

$$3. \left(\frac{20x}{3} - 1\right) \cdot x - \frac{19}{3} \left(\frac{4}{3}x - \frac{1}{5}\right) = 0$$

$$4. 2x^2 - \frac{6x}{11} - \frac{3x}{4} = \frac{22x^2}{3} - \frac{9}{44} - \frac{11x}{4}$$

$$5. x + \frac{1}{x} = \frac{4}{\sqrt{3}}$$

$$6. 2x^4 - 3x^2 - 20 = 0$$

$$7. \frac{2}{x+\sqrt{2-x^2}} + \frac{2}{x-\sqrt{2-x^2}} = x$$

$$8. \sqrt{2+\sqrt{x-5}} = \sqrt{13-x}$$

$$9. x^{\frac{1}{2}} + x^{-1} = 110$$

10. Forma una ecuación de segundo grado que tenga por raíces $\frac{1}{4}$ y $\frac{2}{5}$.

$$11. \sqrt{3-\sqrt{3+\sqrt{x-\sqrt{2x+1}}}} = 1$$

$$12. x^{\frac{5}{6}} + x^{\frac{5}{3}} = 1056$$

$$13. \sqrt[4]{5x^2+3x-11} = \sqrt{4x-7}$$

$$14. \sqrt{3x-6} + \sqrt{2x+6} = \sqrt{9x+4}$$

15. Forma una ecuación de segundo grado que tenga por raíces $3-\sqrt{2}$ y $3+\sqrt{2}$.

$$16. x^6 - 19x^3 = 216$$

$$17. \left(x+1+\frac{6}{x}\right) \cdot \left(x-1+\frac{6}{x}\right) = 24$$

$$18. \frac{\sqrt{x^2+1}+\sqrt{x^2-1}}{\sqrt{x^2+1}-\sqrt{x^2-1}} + \frac{\sqrt{x^2+1}-\sqrt{x^2-1}}{\sqrt{x^2+1}+\sqrt{x^2-1}} = 4\sqrt{x^2-1}$$

$$19. \frac{2\sqrt{x}}{6-\sqrt{x}} + \frac{6-\sqrt{x}}{2\sqrt{x}} = \frac{5}{2}$$

$$20. \frac{x}{1-\frac{1}{x+\frac{1}{2}}} = \frac{1}{12}$$

$$21. \sqrt{4+\sqrt{16x^2+8x^3+x^4}} = 2$$

$$22. 2x^3 - \sqrt{x^3} = 120$$

$$23. 2\sqrt{\frac{1}{5}x-2} = 2 + \sqrt{\frac{1}{6}x-1}$$

$$24. x^8 - x^4 - 240 = 0$$

$$25. 1-x = \sqrt{1-x}\sqrt{4-7x^2}$$

$$26. \frac{1}{\sqrt{5+x}-\sqrt{5-x}} + \frac{1}{\sqrt{5+x}+\sqrt{5-x}} = \frac{3}{4}$$

$$27. \sqrt{x^2+x+4} = 2 + \sqrt{x^2-2x+1}$$

$$28. 6^{x^4-18x^2+86} = 7776$$

$$29. \sqrt{x^3-8x^2+x-14} - \frac{1}{2}\sqrt{4x^3-30x^2-20x-16} = 0$$

$$30. \left((3+x^2) \cdot x^{-3}\right)^{\frac{1}{2}} = \left(\frac{1}{3}(9x^{-3} + x^{-2})\right)^{\frac{1}{2}}$$

INECUACIONES

$$1. \quad \frac{3x-1}{2} - \frac{x-1}{3} < 2x-1$$

$$2. \quad 4x+9-2(3x-5) \geq \frac{x+1}{3} - 1$$

$$3. \quad \frac{x-9}{5} - \frac{5x-13}{15} \leq \frac{4x}{3} + 10$$

$$4. \quad \frac{2x-5}{9} - \frac{4x-1}{6} < -\frac{5x}{18}$$

$$5. \quad \frac{3-5x}{3} - \frac{1-8x}{4} - \frac{23-10x}{12} < 0$$

$$6. \quad (3x+1)^2 - 5x^2 + 2x \leq (2x-1)^2$$

$$7. \quad \begin{cases} 2-4x < 8 \\ 7x+2 > 2x-1 \end{cases}$$

$$8. \quad \begin{cases} 3-2x \geq 7x+12 \\ 2x+3 < 3x-15 \end{cases}$$

$$9. \quad \begin{cases} 4-3(x-1) > 2x-3 \\ 3(x-1)+1 \geq -5 \end{cases}$$

$$10. \quad \begin{cases} 2\left(2x-\frac{5}{2}\right) - 3\left(x+\frac{1}{3}\right) \leq 3-x \\ -\frac{x}{3} + \frac{7x-6}{6} < 1 + \frac{x}{3} \end{cases}$$

$$11. \quad \begin{cases} \frac{2x-11}{3} - \frac{x+1}{6} \leq 0 \\ \frac{4x+6}{5} \leq \frac{7x}{10} + \frac{x+7}{2} \end{cases}$$

$$12. \quad \begin{cases} 9x(x+3)-1 \leq 5+(3x-1)^2 \\ 6(x+13) \leq \frac{x+1}{2} - \frac{x-1}{3} \end{cases}$$

$$13. \quad \begin{cases} \frac{5-4x}{4} + \frac{9x-21}{2} \geq 2 + \frac{10x-37}{4} \\ x + \frac{3x-2}{5} - \frac{x-1}{3} < 3 + \frac{4x-1}{15} \end{cases}$$

$$14. \quad 2 \leq x-5 \leq 6$$

$$15. \quad -3 < 2x-6 < 5$$

$$16. \quad -2x < 4+5x \leq 8$$

$$17. \quad |x-5| \leq 1$$

$$18. \quad \left|x - \frac{1}{2}\right| < \frac{1}{10}$$

$$19. \quad \left|x + \frac{5}{3}\right| < 3$$

$$20. \quad \left|2x + \frac{1}{9}\right| < 1$$

$$21. \quad |3x-2| + 4 < 2$$

$$22. \quad 4|7-3x| - 5 \leq 3$$

$$23. \quad (x-3)(x+2) \geq 0$$

$$24. \quad (x-6)(x^2+1) < 0$$

$$25. \quad (2x-1)(3x+5) \leq 0$$

$$26. \quad x^2 - 4 < 0$$

$$27. \quad x^2 - 6x + 8 < 0$$

$$28. \quad x^2 - 3x - 10 \geq 0$$

$$29. \quad -6x^2 - x + 1 > 0$$

$$30. \quad \frac{3x-1}{2x+5} \leq 0$$

$$31. \quad \frac{3x-1}{2x+5} \geq 0$$

$$32. \quad \frac{2x}{x^2+1} < 0$$

$$33. \quad \frac{25}{x^2-1} \leq 0$$

$$34. \frac{4}{x^2 - 9x + 18} \geq 0$$

$$35. \frac{2x}{x^2 + 1} < 1$$

$$36. \frac{5 - 2x}{3x - 9} < 1$$

$$37. \frac{x^2 + 1}{5x} \leq \frac{1}{2}$$

$$38. \frac{x - 5}{x} + 5 \geq x$$

$$39. \frac{x - 1}{x + 1} > \frac{x + 1}{x - 1}$$

$$40. \frac{x^2 - 6}{2x + 3} < 0$$

$$41. x(3x - 1)(x + 2) < 0$$

$$42. x^3 - 6x^2 + 11x - 6 \geq 0$$

$$43. x^4 - 5x^2 + 4 \geq 0$$

$$44. \frac{x^2 - 8x + 15}{x^2 - 4} < 0$$

$$45. \begin{cases} x^2 \leq 6x + 7 \\ 2x - 3 < 4 \end{cases}$$

$$46. \begin{cases} 2x^2 - 3x > 5 \\ x - 1 < 3x + 2 \end{cases}$$